Understanding aggressive behaviour across the lifespan

J. LIU¹,³ PHD RN FAAN, G. LEWIS²,³ BSE & L. EVANS³ PHD RN FAAN

¹Associate Professor of Nursing, Faculty Member of MPH at School of Medicine, ²Research Coordinator, and ³van Ameringen Professor in Nursing Excellence, Family and Community Health Department, School of Nursing, University of Pennsylvania, Philadelphia, PA, USA

Keywords: aggression, concept analysis

Correspondence:
J. Liu
School of Nursing
University of Pennsylvania
418 Curie Boulevard
Room 426
Claire M. Fagin Hall
Philadelphia
PA 19104-4217
USA
E-mail: jhliu@nursing.upenn.edu

Accepted for publication: 10 February 2012
doi: 10.1111/j.1365-2850.2012.01902.x

Accessible summary

- Aggressive behavior is the observable manifestation of aggression and is associated with transitions across different developmental periods as well as a variety of medical and psychiatric disorders.
- This paper provides a brief review of the different biological, social, and environmental risk factors that may predispose individuals to aggressive behavior.
- In addition, this paper discusses the unique risk factors for aggressive behavior across the developmental spectrum, including childhood, adolescence, adulthood, and late life.
- Appreciation of the risk factors of aggressive behavior and how they relate to age-specific manifestations may aid the development of prevention and treatment programs.

Abstract

Aggressive behaviour is the observable manifestation of aggression and is often associated with developmental transitions and a range of medical and psychiatric diagnoses across the lifespan. As healthcare professionals involved in the medical and psychosocial care of patients from birth through death, nurses frequently encounter – and may serve as – both victims and perpetrators of aggressive behaviour in the workplace. While the nursing literature has continually reported research on prevention and treatment approaches, less emphasis has been given to understanding the aetiology, including contextual precipitants of aggressive behaviour. This paper provides a brief review of the biological, social and environmental risk factors that purportedly give rise to aggressive behaviour. Further, many researchers have focused specifically on aggressive behaviour in adolescence and adulthood. Less attention has been given to understanding the aetiology of such behaviour in young children and older adults. This paper emphasizes the unique risk factors for aggressive behaviour across the developmental spectrum, including childhood, adolescence, adulthood and late life. Appreciation of the risk factors of aggressive behaviour, and, in particular, how they relate to age-specific manifestations, can aid nurses in better design and implementation of prevention and treatment programmes.

Introduction

Background

Aggressive behaviour is an associated symptom of many psychiatric disorders and can manifest throughout the lifespan, from attention-deficit hyperactivity disorder in
children and adolescents, to domestic violence in adults, to dementia in older adults. While much of the aggression literature has focused on adolescents and adults, less attention has been given to understanding the aetiology of aggressive behaviours across the entire developmental spectrum. The purpose of this paper is to provide an overview of the manifestation and causes of aggressive behaviour across the lifespan as well as provide suggestions for the roles that nurses, who frequently interact with patients from all age groups, can play in preventing and intervening in aggressive behaviour. Potential consequences to both the victims and aggressors are also outlined.

Aggression is a highly studied area in the psychosocial literature, particularly adolescent aggression and developmental theories, adult aggression and violence, aggression and criminal behaviour, and psychopathology. These discussions have been detailed elsewhere (Stoff & Cairns 1996, Loeb & Hay 1997, Kempes et al. 2005, Liu & Wuerker 2005, Card et al. 2008). This paper is intended to provide a basic overview of aggressive behaviour and its presentation and risk factors in major age groups so as to facilitate nurses and nursing researchers in better understanding, identifying, preventing and treating this phenomenon. In doing so, we provide a model for anticipating, responding to and preventing aggressive behaviour across the age spectrum.

Definitions and importance

Although interrelated, it is important to differentiate between the concepts of aggression, aggressive behaviour and violence (Liu 2004a). Aggressive behaviour can be conceptualized as the observable manifestation of aggression, which is defined as any act intended to cause harm, pain or injury in another (Zirpoli 2008). It is important to note that although aggressive behaviour and violence are often thought of as synonymous, they are not. Violence is a form of physical assault, whereas aggressive behaviour is a broader construct that includes physical, verbal, psychological and other means of causing harm; that is, violence is but one form of aggressive behaviour. Therefore, aggressive behaviour does not necessarily include a physical component. This distinction is important because, although understanding aggressive behaviour as a correlate or predictor of violence is informative, non-violent aggressive behaviour can still lead to negative outcomes and is equally deserving of attention. The study of aggressive behaviour is important to the healthcare field due to the wide range of possible negative public health outcomes, including youth violence, increased medical resource use (e.g. emergency department, psychiatric and critical care) and economic costs, and greater involvement in the criminal justice system (Liu 2004b, Bastiaens & Bastiaens 2006). A 2002 report from the World Health Organization found that 4400 people die each year due to acts of violence (Krug et al. 2002), underscoring the public health relevance of understanding and preventing aggressive behaviour.

Aggressive behaviour and the nursing profession

The study of aggressive behaviour is particularly relevant to the nursing profession. Since the pioneering days of Florence Nightingale, the work of nurses has evolved to often directly involve many forms of aggressive behaviour, such as the identification of child abuse, the treatment of victims of aggressive behaviour in the emergency department, as well as the emotional and psychological care of sexual assault and rape victims. Workplace violence is also a well-documented phenomenon in healthcare settings, with physicians and nurses often the recipients and/or perpetrators (Duhart 2001, Gillespie et al. 2010). Some studies have shown an increase of violence towards women in the healthcare field (Gillespie et al. 2010), making nurses especially vulnerable.

Nursing involves the physical and emotional care of individuals who may be momentarily unstable both physiologically and psychologically; therefore, the work of nurses in administering care often causes pain and discomfort to the patient. The nature of nurses’ roles increases their likelihood of being threatened, verbally abused or even physically assaulted while providing care. Nurses play an important role in assessing, preventing and treating aggressive behaviour among patients and families. For example, nurses develop and administer psychiatric assessment and diagnostic instruments that can help detect the propensity towards aggressive behaviour or related symptoms (e.g. emotional dysregulation), directly care for victims of aggressive behaviour and provide an environment that is safe and deliberately non-precipitating of aggressive behaviour.

The debate over the risk factors for aggressive behaviour centres on whether it results more from psychosocial factors (e.g. parenting style, emotional trauma) or biological factors (e.g. genetics, exposure to toxic chemicals). However, a common theme among all age groups appears to be the brain. For example, in children, the brain is not fully developed and is highly vulnerable to effects from negative stimuli (toxins, emotional trauma, etc.). In older adults, degeneration of the brain (from drugs, injury or disease) may be a risk factor for aggressive behaviour. Given that nurses are involved in caring for patients across the lifespan, the ongoing dialogue about aggressive behaviour, its aetiological and precipitating factors, as well as developmental manifestations is highly relevant in identifying, preventing and treating symptoms. One of the
Manifestations of aggressive behaviour across the lifespan

Toddlers & pre-schoolers

Aggressive behaviour during childhood is seen as a part of the normal developmental process (Greydanus et al. 1992). Before children develop verbal skills, aggressive behaviour is manifested physically. Later on, verbal skills can be used for aggressive purposes, but also to diffuse aggressive behaviour by communicating needs that could not be expressed physically (Ferris & Grisso 1996). Toddlers display aggressive behaviour by crying, screaming, biting, kicking, throwing and breaking objects (Achenbach 1994, Raine et al. 1998). Anger outbursts typically peak at 18 to 24 months and slowly decrease by age 5. It was found that the majority of children first reached the onset of aggressive behaviour before age 2, at around 17 months of age (Tremblay et al. 1996, Hay et al. 2000, Keenan & Wakschlag 2000). In addition, in children with developmental delay, a higher rate of aggressive behaviour and other externalizing behaviour problems was found (Baker et al. 2003).

School-age children

As children mature and enter school, they may continue to display many of the same aggressive behaviours (e.g. crying, screaming, biting, kicking, throwing and breaking objects) as during pre-school years. As these school-age children begin to have more social interactions and develop more relationships, however, aggressive behaviour towards peers may appear (Greydanus et al. 1992). In addition, behaviours such as teasing, irritability, bullying, fighting and even cruelty to animals or fire setting may be seen. Maternal reports of physical aggression between the ages of 2 and 11 years, however, suggest that aggressive behaviour may actually decrease over time (Tremblay et al. 1996). The same study found an increase in reports of indirect aggressive behaviour from ages 4 to 11 years. This may be due to children’s increased use of verbal skills and a larger number social relationships and interactions during this timeframe. Although school-age children may display aggressive behaviour, multiple studies have found no evidence of the onset of physical aggression in children after the age of 6 years (Broidy et al. 1999, Nagin & Tremblay 1999). This suggests that, for school-age children, aggressive behaviour displayed at this developmental stage is carried over from earlier ages, but does not begin during this stage.

Adolescents

Moving forward, more serious aggressive behaviour and even violence often appear during adolescence, resulting in an increase in injury or death, partly due to greater likelihood of weapon use (Berkowitz 1993, Reiss & Roth 1993). Early violence involves use of knives, with gun use increasing in the later years of adolescence. The increase in bodily strength and adoption of weapons may also empower adolescents to display a greater propensity towards directing aggressive behaviour at authority figures (Callahan & Rivara 1992, Johnston et al. 1993). Usually, adolescent aggressive behaviour occurs in groups, including gang activities such as stealing or truancy (Lopez & Emmer 2002). Peer relationships appear to play an important role in adolescent aggressive behaviour. Displaying aggressive behaviour may be a way to gain popularity or high social status by demonstrating power or control. Peer pressure may lead to displays of aggressive behaviour out of fear of isolation or loss of social standing (Lopez & Emmer 2002).

There is also an increase in aggressive behaviour between girls and boys as cross-gender peer relationships develop. As dating begins, aggressive behaviour between genders increases and may include violent forms of aggressive behaviour, like date rape and sexual assault. In addition, some adolescents may have partners and parent children, bringing the possibility of aggressive behaviour manifested as child abuse or domestic violence. Many researchers have identified adolescent aggressive behaviour as an important public health concern (Lowry et al. 1998, Brener et al. 1999, Krug et al. 2002). A cross-national study by the World Health Organization using the Health Behaviour in School-Aged Children (HBSC) survey was conducted to compare the prevalence of violence across 35 nations (Pickett et al. 2005). Out of 161 082 student respondents, involvement in fighting per country ranged 37–69% for boys and 13–32% for girls (Pickett et al. 2005). In addition, the prevalence of weapon carrying varied 10–21% for boys and 2–5% for girls (Pickett et al. 2005).

There is a subset of aggressive behaviour in adolescents, however, that appears in adolescence and then disappears in early adulthood. It has been termed adolescence-limited antisocial behaviour (Moffitt & Caspi 2001). In this case, previously healthy and normal youngsters engage in
delinquent behaviour during adolescence, but discontinue such behaviours upon entering adulthood. In this scenario, youngsters exhibiting adolescence-limited antisocial behaviour are relatively common, temporary and practically normative (Moffitt & Caspi 2001).

Adults

From adolescence to adulthood, aggressive behaviour may escalate into more serious and violent acts, such as domestic violence, sexual abuse, child abuse and homicide. Young adults (ages 18–24 years) are reported to have the highest homicide rate (U.S. Department of Justice, Federal Bureau of Investigation 2007). In 2009, the number of violent crime cases was 1 251 617, down 5.4% from 2008, and the number of homicides decreased 7.1% over the same time period to 14 558 (U.S. Department of Justice, Federal Bureau of Investigation 2009). Although this recent trend is encouraging, aggressive behaviour and violence are still serious issues for adults.

Child abuse is another important issue relevant to adult aggressive behaviour. In 2008, according to a report on child maltreatment (defined as an act or failure to act which results in death, serious physical or emotional harm, sexual abuse or exploitation), the rate of children who were subject to neglect or abuse was 1.03% (U.S. Department of Health & Human Services, Administration for Children and Families 2008). Of these children, 28.9% were victims of physical, sexual or psychological abuse (U.S. Department of Health & Human Services, Administration for Children and Families 2008).

Spousal abuse is a concern among adults, not only for the physical toll it can take but also for the emotional trauma involved. Although both genders can commit spousal abuse, men are responsible for a majority of incidents. For instance, 7.7% of all women in the USA reported being the victim of sexual violence, and about 22% of women were physically assaulted by a male partner at some point in their lives (Krug et al. 2002). Because nurses are the primary caregivers to these victims, they are active in helping them recover physically and emotionally.

A unique subset of excessive aggressive behaviour in adults is road rage. Although not directly classified in the Diagnostic and Statistical Manual of Mental Disorders – 4th Edition (DSM-IV), it can fall under the category of intermittent explosive disorder. Road rage can describe any displays of anger while driving, although such displays are also referred to as ‘angry or aggressive driving’ (Sharkin 2004). Both aggressive driving and violent driving incidents have increased (Dukes et al. 2001). Age is the most important factor in aggressive driving incidents, with the majority of aggressive drivers being men between 18 and 26 years of age (Dukes et al. 2001). Some factors that may play a role include situational/environmental conditions (traffic, congestion, etc.), personality factors or demographic variables (Sharkin 2004).

Older adults

As adults grow older, new situations come into play. Much of the research on aggressive behaviour in older adults has been conducted on residents in nursing homes, likely due to the high prevalence of dementias in these populations. Aggressive behaviour in nursing home residents may be directed towards other residents or caregivers (Rosen et al. 2008, Zeller et al. 2009). Aggressive behaviour directed towards caregivers or healthcare professionals tends to be precipitated by personal care-related events. Specifically, aiding with showers, baths and toileting may be perceived by the patient as a violation of personal space and body (Zeller et al. 2009). Behavioural disturbance is a common feature in dementia, often due to cognitive impairment, aphasia, agnosia, brain damage resulting in loss of inhibition and emotional dysregulation, and psychosocial difficulties. Patients experiencing difficulty verbally communicating their needs may display aggressive behaviours; thus, aggressive behaviour may serve to protect themselves against actions they misperceive as threats (Talerico & Evans 2000).

A more serious form of aggressive behaviour seen in older adults is homicide–suicide. Data suggest that the annual incidence of homicide–suicide is higher in adults 55 years and older compared to those younger than 55 years, with men more likely to perpetrate it than women (Cohen et al. 1998, Malphurs & Cohen 2005). Homicide–suicide more typically occurs among couples than among unrelated individuals. Suicide, which may be conceptualized as a form of self-directed aggressive behaviour, is disproportionately higher in geriatric populations than non-geriatric populations in the USA. From 2000 to 2006, the rate of suicide among adults aged 65 years and older was 0.0148%, compared to a general population rate of 0.0109% (Centers for Disease Control and Prevention 2009). Completed suicides among older Caucasian men are especially high, as much as five times greater than the national average (Conwell et al. 2002).

Risk factors for aggressive behaviour across the lifespan

Clearly, aggressive behaviour can vary a great deal over the course of an individual’s life. Research suggests that this aggressive behaviour develops as one of two types:
that which emerges in childhood and progresses into adolescence and adulthood, and that which develops after childhood, often due to physical or emotional trauma, substance use, medical illness or brain injury. A summary of developmental-specific risk factors can be found in Table 1.

**Aggressive behaviours emerging during childhood**

Many theories about the emergence of aggressive behaviour during childhood have also been posited to explain the occurrence of aggressive behaviour in adolescents and adults. The social learning theory, which postulates that individuals learn aggressive behaviour by observing others’ behaviour, may explain aggressive behaviour in children as well as other age groups. By observing aggressive behaviour and its effect on obtaining a potential reward (e.g. resolution of a conflict, obtaining what they want), an individual may use similar behaviour when confronted with a similar problem. In children, this is supported by evidence that exposure to family violence is often associated with displays of aggressive behaviour among the children in that family (Herrera & McCloskey 2003, Litrownik et al. 2003). Concern that media influences, such as violence in television or film, may be linked with increased aggressive behaviour in individuals who watch those programmes has found support in children specifically through use of longitudinal data (Huesmann et al. 2003). Another model, the social information processing (SIP) theory, proposes that people develop aggressive behaviour after repeated exposure to specific social stimuli. For example, proactive aggression may occur after having received a reward following aggressive behaviour. Furthermore, SIP posits that individuals who display aggressive behaviour may be prone to misattributing motives, behaviours and social cues, resulting in reactive aggression. Two studies found an increase in aggression scores in children with autism spectrum disorders (Dominick et al. 2007, Hartley et al. 2008). Social information processing theory may partly explain this finding.

More specific to the development of aggressive behaviour in childhood is the question of ‘nature versus nurture’, which weighs whether and how much genetic/biological factors versus environmental factors contribute to aggressive behaviour development. Some studies have found that psychosocial environmental factors, such as poor parental rearing, have a strong association with aggressive behaviour in children (Blanz et al. 1991, Fergusson et al. 1996, Deater-Deckard et al. 1998, Liu et al. 2011a,b), while others suggest a genetic basis for aggressive behaviour (Edelbrock et al. 1995, Miles & Carey 1997, Baker et al. 2008). Still others yield inconclusive results about the effect of genetics. It is likely that both genetics and environment are involved in the development of aggressive behaviour in children. Increased exposure to air pollution or certain chemicals prenatally has been linked to increased aggressive behaviour (Evans & Kantrowitz 2002, Williams & Ross 2007). Individuals displaying aggressive and/or violent behaviour often have abnormal clinical findings on neurological examinations, electroencephalographic studies and brain imaging scans (Stoff & Cairns 1996, Raine et al. 2000, Raine 2002). Aggressive behaviour may also be co-morbid with impulsive behaviour or attention-deficit hyperactivity disorder (Hagerman 1999). Furthermore, neurotransmitters may be an issue, as augmentation of serotonin was recently found to decrease aggressive behaviour (Berman et al. 2009). Serotonin is a neurotransmitter found throughout the body, including the central nervous system where it is thought to contribute to the feelings of happiness and well-being (Young 2007). Sex hormones may be involved in the biological model of aetiology. So-called ‘roid rage’, which attributes aggressive behaviour to taking anabolic steroids, has received significant attention in the popular media. A randomized controlled trial found that men who received testosterone injections had increased ratings of manic symptoms (Pope et al. 2000).

Health risk factors should not be overlooked (Liu 2011). For example, birth complications (e.g. anoxia, forceps delivery), in combination with other risk factors like poor parenting and disadvantaged family environment, are associated with the development of aggressive behaviours in childhood (Hodgins et al. 2001, Aresenault et al. 2002, Liu & Wuerker 2005). It is possible that birth complications may result in central nervous system damage, impairing proper brain function (Liu et al. 2009). Additionally, deficiencies in specific nutrients may hinder brain growth and development, potentially predisposing malnourished children to behavioural disturbance (Liu et al. 2004). Tremblay (2010) notes the benefit of longitudinal studies, which may facilitate clarifying the complex interaction between genes and environmental factors. In the absence of such data, methods to prevent or treat aggressive behaviours may appear before the mechanisms are firmly determined (Tremblay 2010).

**Aggressive behaviour emerging in adolescents, adults and older adults**

Aggressive behaviour may also appear for the first time in adolescents, adults or older adults. Aggressive behaviour emerging after childhood may be conceptualized using similar theoretical approaches as in childhood aggression, such as the social learning theory or SIP theory. Aggressive
# Table 1

Characteristics of and risk factors for aggressive behaviour across different age groups

<table>
<thead>
<tr>
<th>Age group</th>
<th>Characteristics</th>
<th>Underlying &amp; contextual risk factors</th>
<th>Preventive strategies</th>
</tr>
</thead>
</table>
| Toddlers           | Crying, screaming, biting, kicking, throwing and breaking objects.              | Genetic factors and biological factors (e.g. birth complications, nutritional deficit). Imitation of others aggression (social learning theory). After repeated exposure to specific social stimuli (social information-processing theory). Psychosocial and environmental factors (such as poor parenting). | • Parents should present child with age-/developmentally appropriate tasks and expectations.  
• Parents must set limits on hurtful aggressive behaviour.  
• If there is a ‘trigger’ to the aggressive behaviour, the child can be removed from stimulus situation.  
• Classroom-based programmes that emphasize skill building, such as self-monitoring and self-regulating emotions and behaviours, increasing relationships among peers and using communication skills to express anger, frustration, etc.  
• Teacher-led classroom discussions about aggressive behaviour to facilitate open communication about aggression as a problem and make students more aware of its existence, possible triggers and consequences.  
• Institute programmes (e.g. massage therapy, relaxation breathing, music therapy) to reduce aggressive behaviour.  
• Avoid use of physical restraints.  
• Inclusion of parents and family to reinforce learned skills in the home.  
• Teaching conflict resolution and social competency in the classroom setting. |
| School-age children | Aggressive behaviour peaks before age 2. Teasing, irritability, bullying, fighting, cruelty to animals and fire setting. Non-physical aggressive behaviour (e.g. verbal, psychological) increases. | • Target specific risk factors associated with adolescent aggressive behaviour, such as underage alcohol use.  
• Classroom discussions, including role playing and skill rehearsal, to help adolescents learn coping strategies and problem solving. | |
| Adolescents        | More serious aggressive behaviours and even violence appear.                    | Aggressive behaviour that appears in only adolescence and disappears in later life (adolescence-limited antisocial behaviour). Learned aggressive behaviour in childhood that carried over into adolescence. Depression, family and other relationship difficulties, and a family history of suicide (or personal history of suicide attempts) may place an adolescent at greater risk for suicidal behaviour. | • Creating a positive academic environment, including extracurricular activities, sports and arts programmes. Additionally, a positive school environment should include the presence of teachers and other professionals who convey a caring and supportive attitude towards students.  
• Institute programmes (e.g. massage therapy, relaxation breathing, music therapy) to reduce aggressive behaviour.  
• Use of the prevention strategies for children and adolescents mentioned above, particularly school programmes (where children and teens spend much of their time), may prevent aggressive behaviour later in adulthood.  
• Occupational programmes that focus on awareness of workplace violence, bullying and anger management.  
• Target specific risk factors associated with adult aggressive behaviour, such as substance abuse.  
• If necessary, prevent harm to vulnerable parties (e.g. children).  
• Many preventive interventions have been proposed and tested to reduce aggressive behaviour among persons with dementia. These include managing pain, including administering analgesics prior to personal care; knowing and honouring the resident as a person; communicating clearly, calmly and in a warm manner; explaining actions before performing them to reduce surprise or startle; involving the resident in performing self-care; staff consistency in assignments; avoiding use of restraints; and environmental stimulus control (e.g. providing lighting, reducing noise and confusion).  
• Implement special care units for aggressive patients.  
• Special training for the staff on how to deal with aggressive behaviour in older adults. |
| Adults             | Domestic violence, sexual abuse, child abuse and homicide.                     | Drug use.                                                                                             | • If necessary, prevent harm to vulnerable parties (e.g. children).  
• Many preventive interventions have been proposed and tested to reduce aggressive behaviour among persons with dementia. These include managing pain, including administering analgesics prior to personal care; knowing and honouring the resident as a person; communicating clearly, calmly and in a warm manner; explaining actions before performing them to reduce surprise or startle; involving the resident in performing self-care; staff consistency in assignments; avoiding use of restraints; and environmental stimulus control (e.g. providing lighting, reducing noise and confusion).  
• Implement special care units for aggressive patients.  
• Special training for the staff on how to deal with aggressive behaviour in older adults. |
| Elderly            | Older adults in nursing homes due to daily interactions with staff and other residents. | The emergence of dementias such as Alzheimer’s disease may result in misunderstanding of motives. Aggression may result from this confusion. | |
|                    | Aggressive behaviours aimed at caregivers centre on intimate care practices or those that cause pain. Aggressive behaviour aimed at fellow residents in the context of excessive vocalization, territoriality, arguments with roommates and general loneliness or frustration. | The annual incidence of homicide–suicide is higher in adults 55 years and older and typically occurs more among couples. Multifactorial aetiology. | |

© 2012 Blackwell Publishing
behaviour, however, that appears later in life may also be associated with increased substance abuse. Aggressive behaviour may be used to obtain money to purchase substances or while under the influence of substances. Illicit drug use was found to be associated with increases in violence and violence-related injuries (Baskin-Sommers & Sommers 2006, Vitale & de Mheen 2006).

Of the substances linked to aggressive behaviour, alcohol appears particularly noxious. Alcohol is linked with violence including intimate partner violence (Lipsky et al. 2005, Bye 2007). For example, alcohol was present in 63% of partner violence incidents, 39–45% of murders, 32–40% of sexual assaults and 45–46% of physical assaults (Greenfeld & Henneberg 2001). Level of intoxication may also contribute. Individuals involved in incidents of severe aggressive behaviour may be more intoxicated that individuals involved in less severe incidents (Graham & Wells 2001). Alcohol, however, has not been conclusively shown to cause aggressive behaviour. Alcohol may interfere with self-control. Or perhaps, individuals who use aggressive behaviours consume alcohol more frequently than people who do not.

Recent data have examined the impact of traumatic brain injury (TBI) and an increased likelihood to develop aggressive behaviour following childhood. For example, aggressive behaviour was a prevalent symptom of TBI (Tateno et al. 2003, Baguley et al. 2006, Cole et al. 2008). The initial injury may damage areas in the brain responsible for managing aggression and impulse control, particularly the frontal lobes (Tateno et al. 2003). It is not known, however, whether TBI may have other effects resulting in aggressive behaviour that brain scans may not detect.

The onset of dementia may contribute to the manifestation of aggressive behaviour in older adults due to decrements in intellectual functioning, memory and reasoning (Brodaty & Low 2003, Patel & Hope 2004). Further, patients with neurodegenerative diseases may suffer from delusions or hallucinations, making aggressive behaviour more likely when they misperceive a threat (Aarsland et al. 1996, Patel & Hope 2004). Kunik et al. (2010) detailed aggressive behaviour risk factors in persons with dementia and found depression, physical pain and poor interrelationships between the patient and caregiver significantly associated with greater incidence of aggressive behaviour. Other disorders associated with aggressive behaviour are bipolar disorder, depression and post-traumatic stress disorder (Treuting & Hinshaw 2001, McGirr & Turecki 2007, Taft et al. 2007, Garno et al. 2008, Latalova 2009, Tateno et al. 2010). These associations not only apply to older adults but to all adults in general. For those with bipolar disorder, which is characterized by alternating episodes of mania or depression, aggressive behaviour may occur during mania. In patients with depression or in a depression episode of bipolar disorder, self-directed aggression may manifest. Post-traumatic stress disorder often results from psychological trauma and affects the individual’s ability to cope with anxiety. Aggression against others may serve as a way to deal with the stress.

It is unclear if a causal relationship exists. Aggressive behaviour in older populations has been associated with pre-morbid personality dysfunction, illness progression, verbal communication impairments and misattributions of behaviours from caregivers (e.g. perceiving acts of personal care, such as hygiene, as threats) (Talerico et al. 2002, Pulsford & Duxbury 2006, Rayner et al. 2006, Shub et al. 2010). In addition, although the reasons behind homicide–suicide are often unclear, a number of factors may contribute. For example, the perpetrator was more likely a caregiver for the victim (Malphurs & Cohen 2005). Similarly, the perpetrator more likely had a history of domestic violence (Malphurs & Cohen 2005). Other factors include marital and family conflict, pending separation and life event stressors (Rosenbaum 1990, Cohen 2000, Malphurs et al. 2001). In some instances caregivers recognize their own failing health and do not want to leave the spouses unattended. For example, increased dependency of the care recipient and greater functional impairment of the caregiver can increase strain and burden which is associated with increased depression symptoms (Schulz & Beach 1999).

Finally, risk factors for suicide among older adults are well researched and generally considered complex due to the multiplicative effects of physical and mental disabilities that are increasingly common in late life. Psychiatric disorders, including major depression and psychotic illness, significant physical illness, perceived burdensomeness, lack of social support and living alone all appear to significantly increase the risk of suicide in this population (Garand et al. 2006, Mitty & Flores 2008, Jahn et al. 2011). This complexity may make it difficult to implement prevention plans.

Consequences of aggressive behaviour

After it appears, aggressive behaviour can have profound health and psychosocial effects on the perpetrator, victim, as well as bystanders. Children exposed to family violence may be more likely to express problem behaviours themselves (Litrownik et al. 2003, Liu 2004b). Infants who live in families that experience aggressive behaviour and violence may suffer from irritability, sleep disturbances, emotional distress and somatic complaints (Osofsky & Scheeringa 1997, Zeanah & Scheeringa 1997). Children...
living in homes with handguns are differentially at risk for increased injury or death than children not living in homes with firearms (Richmond et al. 2002). Additionally, when children enter school, exposure to violence may result in misattribution biases towards inferring negative intent from neutral or unclear social cues, which can impair one’s ability to form healthy, functional relationships (Dodge et al. 1998). As aggressive children grow older and enter adolescence, they become at greater risk for anxiety, depression and suicidal behaviour (Browne & Finkelhor 1986, Lewis 1992, Rosenberg & Rossman 1998).

Aggressive behaviour casts a notable economic toll (O’Leary-Kelly et al. 1996, Schat & Kelloway 2000, Barling et al. 2001). The total financial cost of violence in the USA was estimated to be $70 billion per year, with $64.4 billion in lost productivity and $5.6 billion in medical care (Corso et al. 2007). While victims of aggressive behaviour are at risk for psychological and emotional traumatic reactions as well as psychiatric disorders, such as panic attacks, phobias and depression, aggressors also face negative consequences. This includes increased risk of legal punishment and, in some cases, imprisonment. In turn, the violent nature of the prison environment often further reinforces aggressive behaviour in the offender, perpetuating a cycle that can be difficult to break.

**Prevention and intervention: a three-pronged approach**

Due to these significant consequences of aggressive behaviour, steps for prevention and treatment must be taken to mitigate these harmful effects. Understanding the risk factors for aggressive behaviour is vital to effective prevention and intervention. Many psychological treatments for aggressive behaviour have been included as part of larger interventions for anger. While anger does not always lead to aggressive behaviour, anger management interventions often focus on reducing aggressive behaviour as an important outcome of interest. Effective techniques supported by the literature include cognitive/skill-training components (e.g. identifying and correcting misattributions, reframing negative cognitions into more neutral or positive cognitions, using forethought and planning behaviours rather than acting impulsively, developing problem-solving skills, using perspective taking to consider others’ views, self-monitoring to increase awareness of one’s emotions and potential reactions) as well as behavioural components (e.g. finding non-aggressive means for communicating, and non-aggressive methods of diffusing anger, emoting and venting frustrations; using relaxation techniques) (Chemtob et al. 1997, Deffenbacher et al. 2000, Deffenbacher & McKay 2000, Del Vecchio & O’Leary 2004). Pharmacologic treatments with documented efficacy in children and adult populations include mood stabilizers, antipsychotics, selective serotonin reuptake inhibitors, beta blockers and anticonvulsants (Coccaro & Siever 2002, Findling 2003). We recommend a three-pronged approach for the prevention and intervention of aggressive and violent behaviour. The first involves the use of primary prevention programmes focusing on the prenatal and perinatal periods of birth. Prenatal nurses and nurse midwives can provide good prenatal care and screen for risk factors. In addition, they can educate mothers on proper prenatal care, including the importance of nutrition and the avoidance of smoking, drinking or other harmful activities. For instance, supplementation with different nutrients or micronutrients (e.g. thiamine, lithium and tryptophan) has been shown to lead to decreased aggressive behaviour (Werbach 1992). Post-partum nurses can instruct parents about proper parenting skills and the importance of breastfeeding. However, there is conflicting evidence about whether breastfeeding protects against behaviour problems or not (Kramer et al. 2008, Kramer 2010, Oddy et al. 2010).

The second approach could target prevention efforts towards vulnerable populations, such as pregnant teenagers and at-risk families (e.g. those with a history of violence). Again, patient education about the damage of prenatal smoking or drinking may be beneficial. School nurses can monitor child growth and development. Additionally, they can work with teachers to detect the warning signs of aggressive behaviour and explain emotion management techniques. School nurses can also instruct nurses about different techniques to reduce aggressive behaviour in children and adolescents that already exhibit it. For example, massage therapy helped decrease aggressive behaviour in pre-school children (von Knorring et al. 2008). Separate case reports have suggested that meditation, relaxation breathing exercises and music therapy could be effective in lessening aggressive behaviour (Rickson & Watkins 2003, Birnbaum 2005, Gaines & Barry 2008). However, in-classroom use of restraints was not found helpful, as it actually increased problem behaviours (Magee & Ellis 2001).

Community health and public health nurses can help at-risk families through enrolment in school-based or community-based prevention programmes or family-strengthening programmes, which have been shown to be effective (Fields & McNamara 2003, Kumpfer & Alvarado 2003, Mytton et al. 2006). The Head Start programme, when incorporating an emotion-based prevention programme, led to increases in emotion knowledge and regulation and decreases in aggressive behaviour, negative
emotion expressions, and negative peer and adult interactions (Izard et al. 2008). As demonstrated by Olds et al. (1998), nurses can be directly involved in prevention through home-based nursing visits early in childhood, which may lead to reduced aggressive behaviour later. In addition, removing guns and other weapons in the home could improve safety and prevent violence from occurring.

Finally, the third approach involves the actual treatment of those individuals that develop aggressive behaviour. Psychiatric nurses are very involved in the traditional methods of intervention, such as psychotherapy or psychopharmacology. Cognitive behavioural therapy attempts to address dysfunctional emotional, behavioural and cognitive problems by helping patients adopt healthier behaviours and thinking patterns. Studies have shown the effectiveness of cognitive behavioural therapy in reducing anger and aggressive behaviour in children, adolescents and adults (Beck & Fernandez 1998, Rowand et al. 1999, Sukhodolsky et al. 2004). In the treatment of older adults, geriatric nurses need to be aware of the special issues involved. Care must be taken when attending to patients with dementia, who might perceive care as a threat. A person-centred approach has been effective in decreasing aggressive behaviour in dementia patients (Enmarker et al. 2011). The treatment of behavioural disturbances, including aggressive behaviour, in patients with dementia often involves pharmacotherapy with atypical antipsychotic medications. Equivalent non-pharmacological treatments may include behaviour modification techniques to help patients learn non-aggressive strategies for communicating. Observing early interactions that escalate to aggressive behaviour in a person of risk can also be important. A study by Landreville et al. (2006) reviewed the effectiveness of different non-pharmacological techniques. Special staff training, removal of negative stimuli, structured activities and special care units showed some effectiveness in reducing aggressive behaviour (Landreville et al. 2006). Although these programmes may not work in all situations, nurses can experiment with them to see which initiatives are effective for individual patients. Overall, in the care of older adults, nurses and caregivers must explore the needs of their patients by open communication between the caregivers, patients and their family members.

Nurses may be particularly effective in the implementation of these behavioural strategies as they have continual contact with patients and are involved with care giving throughout the patient’s day. Nurses are important for risk assessment, as they have the opportunity to predict whether future aggression is likely based on past behaviours (Irwin 2006). Not only are nurses likely to be very familiar with a patient’s given ‘triggers’ for aggressive behaviour, their ongoing involvement with patients means they have ample opportunities to teach skill building for reducing aggressive behaviour. For the actual treatment of aggressive behaviour, medication is an effective tool. For inpatients, the quality of the nurse–patient relationship appears to be the most significant determinant of whether patients decide to take their medications (Irwin 2006). Therefore, nurses have an important part to play in prevention, risk assessment and treatment of aggressive behaviour.

Conclusion

The concept of aggressive behaviour across the lifespan is very complex. An overarching theme appears to involve both risk factors that precipitate and increase the predisposition towards aggression as well as situations that actually elicit the aggression. For instance, early exposure to violence, toxin exposure, drug use, etc. may potentially be risk factors for aggression and predispose people to behaving aggressively. However, specific situations may actually draw out that aggressive behaviour. This appears to apply to all age groups. For example, in childhood, aggressive behaviour may bring rewards, such as material goods or control over a situation. In adolescence, aggressive behaviour may result from increased peer pressure or may serve as a means to resist authority. In adulthood, increased responsibility (taking care of family or earning an income) may bring targets of aggressive behaviour such as domestic violence. In older adults, invasion of personal space may trigger aggression and diminishing physical skills may be a reason to contemplate suicide. These are just some scenarios in which aggressive behaviour may be drawn out. Effective prevention strategies may need to reduce risk factors as well as mitigate the ability of those situations to elicit aggression.

This is essential, because aggressive behaviours pose important individual and public health risks. As the medical caregivers who have the most interaction with aggression victims and perpetrators, nurses play a central role in the prevention and intervention of aggressive behaviour. A better understanding of the aetiology and meaning of aggressive behaviour may lead to better treatment options and, ultimately, better outcomes. Aggressive behaviour has been linked to both psychosocial and biological factors, and greater research is needed to definitively identify all of the factors that can give rise to aggressive behaviour. Aggressive behaviour is unique in that its causes and manifestations can vary across different age groups. Therefore, it is imperative that nurses understand these age-related differences in order to successfully tailor and develop effective prevention and intervention plans.
References


Lopez V. & Emmer E. (2002) Influences of beliefs and values on male adolescents’ decision to...


